

Review of the Australian Shield Bug genus *Theseus* Stål

(Insecta, Heteroptera, Pentatomidae)*

By M. Baehr

Abstract

The Australian Shield Bug genus *Theseus* Stål is reviewed. *Theseus purpurascens* spec. nov. from northern Australia and following subspecies of the widespread species *Theseus modestus* (Stål) are newly described: *T. m. grossi* sub-spec. nov., from Western Australia and *T. m. tasmanicus* sub-spec. nov., from Tasmania. Some taxa described by Distant as species, though later synonymized with *T. modestus*, are reestablished as valid subspecies: *T. m. scutellatus* (Distant, 1899) and *T. m. lyricus* (Distant, 1899), both from Western Australia. For *T. m. scutellatus* a lectotype is designated. The establishment of subspecies depends largely on the shape of ♂ pygophores which show two main types. Their distribution within Australia shows a puzzling alternating pattern, as each subspecies is encircled by subspecies possessing the other main type of ♂ pygophore. This pattern leads to the assumption, that the north-western and western Australian refugia have been colonized by several independent lineages of *T. modestus*.

Introduction

Theseus Stål is an Australian genus of medium-sized shield bugs of the Pentatomid tribe Halyini, or the *Halys*-group sensu GROSS (1975, 1976), respectively. The genus has an Australia-wide distribution, but it was thus far unknown from Tasmania. Several species have been described by STÅL, WALKER, and especially DISTANT. GROSS (1976), however, who revised all types, synonymized all these species with *T. modestus* (Stål, 1865), with exception of a second species *T. distanti* Gross, 1972 (= *T. scutellatus* Distant, 1910; nec. Distant, 1899!). According to GROSS (l. c.), *T. modestus* is distributed over the whole of Australia, and records are available from all mainland states. The second described species, *T. distanti*, however, is only known from northeastern Australia.

On several trips through Australia, I had the opportunity to collect rather numerous *Theseus* specimens which seem to me to represent different taxa. While checking the ♂ genitalia, two main different types of ♂ pygophores were discovered. Within both groups minor further differences exist. All pygophore types are geographically well separated. This led me to the assumption, that *T. modestus* is actually a polytypic species with several well separated subspecies. For settling of this question I checked all type specimens available and also the unidentified *Theseus* from the British Museum. It became then evident that two of Distant's "species" match two of these subspecies.

Together, this review is based on 90 specimens.

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Acknowledgements

I am greatly indebted to Mr. J. H. Martin (London) for the loan of all types of *Theseus* in the British Museum. Thanks are also due to the authorities of the DFG who supported this study by a travel grant.

Measurements

All measurements were made under a stereomicroscope using an ocular micrometer. Length is measured from tip of anteclypeus to apex of membrane.

Characters

Best character for separating subspecies of *T. modestus* is the ♂ pygophore and, to some extent, also the shape of the claspers. Other characters, for example size, shape of pronotum, colour, pattern and puncturation of surface are also quite useful as additional distinguishing characters, although they vary to some degree.

Classification

Genus *Theseus* Stål, 1867

Theseus

Stål, 1867, p. 508

KIRKALDY 1909, p. 187

DISTANT 1910, p. 374

GROSS 1976, p. 285

Type species: *Poecilometis modestus* Stål, 1865

Diagnosis:

A good exhaustive diagnosis was given by GROSS (1976), who added also a key for distinguishing the genus *Theseus* from most other Australia genera of the *Halys*-group sensu GROSS (1975). The most important characters of the genus *Theseus* are: Antenne five-segmented; juga not surpassing anteclypeus; rostrum reaching base of 5th abdominal sternite; 2nd segment of rostrum much shorter than the two following segments together; membrane without cells.

Key to the species of *Theseus*

1. Posterior angles of laterotergites dentate. Postero-lateral angles of pronotum with a distinct acute tooth. 2.
 - Posterior angles of laterotergites not dentate. Postero-lateral angles of pronotum not toothed 3.
2. Large, elongate species (over 17 mm). Corium purplish, scutellum with two large, sublateral, yellow spots near base, encircled with black. Punctures rather coarse (Fig. 13). Northwestern Australia
 - *T. purpurascens* spec. nov.
 - Smaller, less elongate species (under 13 mm). Surface yellow to pink. Scutellum without large yellow spots. Punctures of surface very small (Fig. 12). Northeastern Queensland *T. distanti* Gross
3. Basal part of ♂ pygophore short and wide, lateral arms short and laterally strongly convex. Triangular process ventrally at base of pygophore large, protruding (Figs 8 a, b, d) 4.
 - Basal part of ♂ pygophore narrow or wide, lateral arms elongate and laterally rather straight. Triangular process ventrally at base of pygophore small, inconspicuous. (Figs 9 a, b, 10 a, b) 5.

4. Triangular process at base of ♂ pygophore deeply notched. (Fig 8 d). Punctures of dorsal surface coarse. Pattern rather vivid (Fig. 5). Eastern and southeastern Australia. *T. modestus modestus* (Stål)
- Triangular process at base of ♂ pygophore not notched (Fig. 8 a). Punctures of dorsal surface fine and dense. Pattern uniform, colour light reddish (Fig. 6). Nordwestern Australia south of Great Sandy Desert *T. modestus grossi* subsp. nov.
5. Basal part of ♂ pygophore wide and short (Figs 10 a, b). Lateral border of pronotum conspicuously bent, anteriorly rather crenulate (Fig. 4). Punctures of upper surface coarse, widely spaced (Fig. 7). Tasmania *T. modestus tasmanicus* subsp. nov.
- Basal part of ♂ pygophore rather narrow (Fig. 9 a, b). Lateral border of pronotum nearly straight, not much crenulate (Fig. 3). Punctures of upper surface coarse, but rather dense 6.
6. Size large, 14 mm or more. Colour largely reddish to light brown. Punctures of dorsal surface coarse and dense. Southwestern, central, and perhaps southern Australia *T. modestus scutellatus* (Distant)
- Size rather small, less than 13 mm. Colour either greyish or partly black. Punctures of dorsal surface less coarse and dense. Northwestern Australia, north of Great Sandy Desert, northwestern Northern Territory *T. modestus lyricus* (Distant)

***Theseus modestus* (Stål, 1865)**

Poecilometis modestus

- Stål, 1865, p. 166
 LETHIERRY & SEVERIN 1893, p. 95 (*Theseus*)
 DISTANT 1899, p. 424 (*Theseus*)
 KIRKALDY 1909, p. 187 (*Theseus*)
 GROSS 1976, p. 286 (*Theseus*)

Poecilometis plenus

- Walker, 1869, p. 211

Spudaeus lyricus

- DISTANT, 1899, p. 424
 DISTANT, 1910, p. 374 (*Theseus*)

Poecilometis scutellatus

- Distant, 1899 p. 426

Theseus nigrescens

- Distant, 1904, p. 263

Theseus turneri

- Distant, 1910, p. 374

Diagnosis:

A well known species, easily distinguished from the two other species of *Theseus* by lack of acute posterior angles of pronotum, not dentate posterior edges of laterotergites, and colour and pattern. A good general description of the species was given by GROSS (1976).

***Theseus modestus modestus* (Stål, 1865)** (Figs 1, 5, 8 d, 16)

Poecilometis modestus

- Stål, 1865, p. 166
 GROSS 1976, p. 286 (*Theseus modestus*)

Poecilometis plenus

- Walker, 1869, p. 211

Theseus nigrescens

Distant, 1904, p. 263

Theseus turneri

Distant, 1910, p. 374

Types:

GROSS (1976) says that he inspected the type of *T. modestus* (Stål) from the BMNH. Since then, however, the type seems to have been lost, as he could not be found there and as the type specimens of *T. plenus* (Walker) bears a label: "This is the only type specimen under *modestus*. The label on the pin has it as *plenus*." I saw the types of following taxa: *plenus* Walker, ♂, Type No. Hem. 738 (BMNH), from Townsville, Queensland; *turneri* Distant, ♂, Type No. Hem. 740 (BMNH), from Mackay, Queensland.

All these specimens belong to the same subspecies *T. m. modestus*. *T. nigrescens* Distant is based on a largely blackish exemplar, but it does not merit subspecific rank, as for example in *T. m. lyricus* blackish specimens are also common within "normal" populations.

Type locality (of *modestus* Stål):

Moreton Bay, Queensland.

Diagnosis:

A medium sized to large subspecies, mostly rather dark reddish or brownish, with vivid pattern; straight, just feebly crenulate lateral borders of pronotum; coarset, conspicuously dark coloured, and rather dense puncturation; and short and wide ♂ pygophore.

Description:

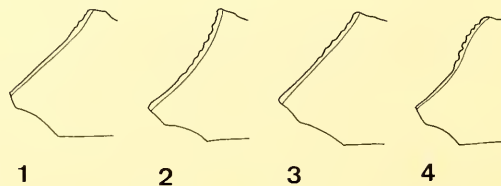
A good description, mainly based on this nominate subspecies, gives GROSS (1976). Some characters not included in GROSS's description or important for distinction from other subspecies are given.

Length: 12.5–15 mm.

Colour: Ground colour yellow, with coarse and dense black puncturation. Each puncture with a more or less wide, black corona around it. Most specimens also with some dark areas or stripes on pronotum, scutellum, or corium. Head nearly always with six conspicuous dark and yellow stripes. Also pronotum with a conspicuous median yellow stripe and sometimes with several indistinct lateral stripes. Mesocorium and exocorium near borders with conspicuous yellow stripes, therefore pattern in general vivid. membrane black, only apex greyish. 1st segment of antennae laterally dark, medially yellow, somewhat mottled. 2nd and 3rd segments largely dark, 4th segment yellow, dark only at apex, 5th segment basally yellow, apical two thirds dark. Legs dark, slightly mottled; tibiae with subapical yellow ring, tarsomeres yellow, last tarsomere sometimes dark. Lower surface of thorax dark; abdomen with sublateral dark stripe; also basal parts of sternites medially dark; genital segment black.

Head: Of average size. Juga oblique. Antennae elongate, 2nd segment not much longer than 3rd segment, sometimes shorter. Antennal ratio of three specimens: 19:25:21:23:21; 17:24:22:24:21; 19:25:27:26:16. Puncturation of upper surface coarset, regularly arranged in stripes.

Pronotum: With lateral border nearly straight, just feebly crenulate in anterior part. Lateral channel fairly wide and deep, border rather upturned. Puncturation coarse, fairly dense.



Figs 1–4. Lateral border of pronotum. 1. *T. m. modestus* (Stål); 2. *T. m. grossi*, subsp. nov.; 3. *T. m. scutellatus* (Distant); 4. *T. m. tasmanicus*, subsp. nov.

Scutellum: With median part slightly raised, densely and coarsely punctate. Punctures of corium moderately dense, but coarse, leaving rather large light areas between punctures.

Lower surface: Of thorax moderately punctate, abdomen smooth.

♂ genitalia: Very similar to following subspecies. Basal part of pygophore short and wide, with large, protruding, deeply incised process at posterior border of ventral surface (Fig. 8d). Lateral "arms" short and wide, laterally strongly convex and sinuate. Clasper apically convex.

♀ genital segment: Similar to that of the other subspecies (Fig. 11).

Variation: Some variation noted in size, colour, pattern, relative length of antennal segments. Apparently little variation, however, in shape of ♂ pygophore.

Distribution (Fig. 16):

Eastern Australia from at least New South Wales to northwestern Queensland. Perhaps also in adjacent Northern Territory. Victorian and South Australian specimens belong probably to another subspecies, but see under *T. m. scutellatus*.

Material examined (23 specimens):

Queensland: 1 ♂, Moreton Bay, type *plenus!* (BMNH); 1 ♂, 1 ♀ Brisbane (BMNH); 1 ♀, Bunya Mt., 40 km E. of Dalby (ZSM); 1 ♂, 1 ♀, Rockhampton (BMNH); 1 ♂, Mackay, type *turneri!* (BMNH); 1 ♂, Mackay (BMNH); 1 ♂, Townsville, type *nigrescens!* (BMNH); 1 ♂, Townsville (BMNH); 1 ♀, Inkerman nr. Townsville (BMNH); 3 ♀, Einasleigh River, 65 km E. of Georgetown (ZSM); 1 ♂, (BMNH). — New South Wales: 1 ♂, East Kurrajong (BMNH); 1 ♀, Napean River, nr. Penrith (BMNH). — State?: 1 ♂, Miva (BMNH); ♂, 1 ♀, "Perth Museum" (BMNH); 1 ♂, 1 ♀, "Kirkaldy Coll. (BMNH); 1 ♀, (BMNH).

Habits:

Like other subspecies of *T. modestus* on and under bark of *Eucalyptus*. My specimens mainly from River Eucalypt.

Theseus modestus grossi subsp. nov.

(Figs 2, 6, 8, 16)

Types:

Holotype: ♂, De Grey River, 80 km NE. of Pt. Hedland, Western Australia, 27.–28. XI. 1984, under bark of River Eucalypt. M. BAEHR (ANIC). — Paratypes: 1 ♀, same locality, same date (ZSM); 1 ♂, 3 ♀, Dales Gorge, Hammersley Ranges, 60 km SE. of Wittenoom, Western Australia, 29. XI. 1984, under bark of River Eucalypt. M. BAEHR (BMNH, ZSM); 1 ♀, Fortescue River, near Millstream, Western Australia, 3. XII. 1984, under bark of River Eucalypt. M. BAEHR (ZSM); 1 ♀, Minilya River, 142 km N. of Carnarvon, Western Australia, 11.–12. XII. 1984, under bark of River Eucalypt. M. BAEHR (ZSM).

Type locality: Australia.

De Grey River, 80 km NE. of Pt. Hedland, Western

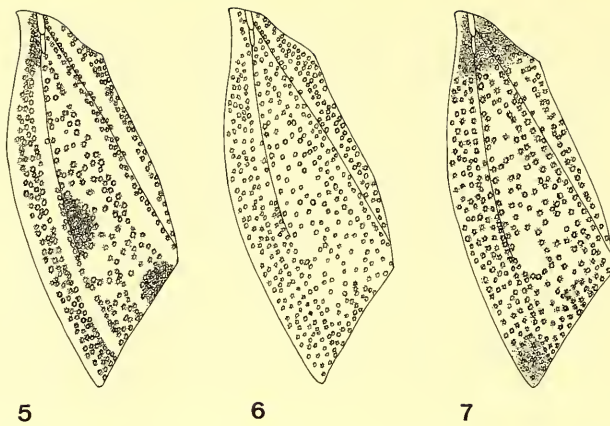
Diagnosis:

A reddish, uniformly coloured subspecies with dense puncturation, rather crenulate lateral border of pronotum, and short, wide ♂ pygophore with short, convex arms and a large, undivided ventral process.

Description:

Length: 13–15.5 mm.

Colour: Ground colour yellow to pink, hence surface rather reddish. Dark puncturation dense, but punctures without dark corona. Dorsal surface without dark markings. Pattern rather homogenous, not contrasting, light stripes and spots on head, pronotum, and, especially, on corium, inconspicuous. The only conspicuous pattern feature is the yellow median line on pronotum which is extended onto basal part of scutellum. Antennae light reddish, only apical parts of 3rd to 5th segments slightly dar-



Figs 5–7. Puncturation pattern of hemielytra. 5. *T. m. modestus* (Stål); 6. *T. m. grossi*, subsp. nov.; 7. *T. m. tasmanicus*, subsp. nov.

ker. Legs yellow, densely mottled, apical two thirds of metatibia dark brown. Lower surface of thorax largely light, punctate, with coarse, dark punctures. Abdomen yellow with a submarginal brown band. Medially with some scattered punctures. Genital segment black.

Head: Of average size. Puncturation of stripes rather regular. Antennae elongate, 2nd segment slightly longer than 3rd or about as long as 3rd segment. Antennal ratio of three specimens: 22:28:21:28:21; 21:26:22:27:21; 20:28:28:30:—.

Pronotum: With feebly sinuate, rather crenulate lateral borders. Lateral channel shallow, narrow, lateral border not much upturned. Puncturation of surface dense and regular, punctures medium-sized.

Scutellum: Densely and regularly punctate, median part slightly raised. Also puncturation of corium dense and regular, punctures medium-sized.

♂ genitalia (Figs 8 a, b, c): Basal part of pygophore short and wide, with large protruding, though not incised process on posterior rim of ventral surface. “Arms” short, convex, laterally sinuate. Claspers convex at apex.

♀ genital segment: Much like in other subspecies.

Variation: Little variation noted.

Distribution (Fig. 16):

Western Australia south of Great Sandy Desert to at least north of Carnarvon.

Material examined (8 specimens):

Only type series.

Habits:

All specimens collected from under bark of River Eucalypt (*Eucalyptus camaldulensis*) along dry river courses or in gorges of the Hamersley Range.

***Theseus modestus lyricus* (Distant, 1899)**

(Figs 9, 16)

Spudaeus lyricus

Distant, 1899, p. 424

KIRKALDY 1909, p. 188 (*Austromalaya lyricus*)

DISTANT 1910, p. 374 (*Theseus lyricus*)

GROSS 1976, p. 286 (*Theseus modestus*)

Types:

Holotype: ♂, Roebuck Bay, 92.-4., Brit. Mus. Type No. Hem. 739 (BMNH).

Type locality:

Roebuck Bay, northwestern Australia.

Diagnosis:

Rather small subspecies of greyish appearance, without conspicuous pattern. ♂ pygophore basally narrow, with small ventral process and elongate, rather straight arms.

Description:

Length: 11.5–13 mm.

Colour: Ground colour whitish, in some specimens with a pink hue on apical part of corium. Some specimens with more or less extensive dark areas on scutellum and corium. Surface with moderately dense, dark puncturation, which gives the surface a rather uniformly greyish appearance. Dark and light stripes on head, white median stripe on pronotum, and white stripes on corium inconspicuous, pattern fairly uniform. Antennae basally mottled, rather dark, 4th and 5th segments light at base. Legs light, darkly punctate, only posterior tibia with distinct white subbasal ring and dark apex. Lower surface of thorax white, densely punctate with coarse, dark punctures. Abdomen yellow with brown sub-lateral stripe, medially with rather dense brown punctures. Membrane light grey, only base blackish.

Head: Of average size. Puncturation rather fine, slightly irregular. Antennae elongate, 2nd segment mostly slightly longer than 3rd segment. Antennal ratio of three specimens: 19:25:23:25:20; 16:24:19:24:17; 20:25:24:24:19.

Pronotum: With lateral borders nearly straight, barely crenulate. Lateral channel moderately deep, border slightly upturned. Surface with moderately dense and coarse puncturation.

Scutellum: With fairly dense and coarse punctures. Median part slightly raised. Puncturation of corium moderately coarse, not very dense, leaving some smooth areas on mesocorium.

♂ genitalia (Fig. 9): Basal part narrow, process on apical border of ventral surface tiny. "Arms" elongate, straight, laterally not much sinuate. Claspers with convex apex.

♀ genital segment: Very much like that of other subspecies.

Variation: Not much variation noted, apart from extensive blackish colour in some specimens. DISTANT's type specimen of *T. lyricus*, however, with puncturation of corium still less coarse and with lateral arms of ♂ pygophore slightly more convex and sinuate, this specimen rather "untypical"!

Distribution (Fig. 16):

Northwestern Northern Territory, adjacent northwestern Australia, north of Great Sandy Desert.

Material examined (48 specimens):

Western Australia: 1♂, Roebuck Bay, holotype! (BMNH); 18♂, 12♀, Fitzroy River, nr. Willare, 24.-25. XI. 1984, M. BAEHR (ANIC, BMNH, ZSM); 6♂, 1♀, Mary River, 115 km WSW. of Hall's Creek, 17.-18. XI. 1984, M. BAEHR (ZSM); 1♀, Ord River, 105 km N. of Hall's Creek, 16. XI. 1984, M. BAEHR (ZSM); 1♂, Denham River, 18 km S. of Road Crossing Wyndham-Hall's Creek, 14. XI. 1984, M. BAEHR (ZSM); 2♂, 1♀, Ord River nr. Ivanhoe, 11.-13. XI. 1984, M. BAEHR (ZSM); 1♂, Ord River, HELMS, "*Theseus lyricus* Dist.", det. B. UVAROV (BMNH). - Northern Territory: 2♂, 2♀, Victoria River, 11 km W. of Timber Creek, 10.-11. XI. 1984, M. BAEHR (ZSM).

Habits:

Nearly all specimens collected from under bark of River Eucalypts (*Eucalyptus camaldulensis*) along the course of rivers.

Theseus modestus scutellatus (Distant, 1899)
(Figs 3, 16)

Poecilometis scutellatus

Distant, 1899, p. 426

KIRKALDY 1909, p. 190 (*Poecilometis*)

GROSS 1976, p. 286 (*Theseus modestus*)

Types:

There is one specimen available, labelled type: ♀, "Type *scutellatus* Dist., Perth. W. Australia, 93–193, Brit. Mus. Type No. Hem. 762." As DISTANT's (1899) description, however, is based on two specimens, one from "Darlington, Victoria", the "type" can only be recognized a syntype. It is herewith designated the lectotype. There is another ♀ specimen, labelled "Darlington" in the sample of unidentified *Theseus* specimens from BMNH, pinned in the same manner and with the same sort of pin, which represents most likely the other syntype. It is herewith designated the paralectotype. Unfortunately, the sample encloses two other specimens from Perth, also pinned in the same manner, and labelled with the same printed label and with identical collection number. Most likely these specimens belong to the same sample from which DISTANT described his *Poecilometis scutellatus*.

Type locality:

Perth, southwestern Australia.

Diagnosis:

Large, uniformly reddish-brown subspecies, always with largely blackish scutellum. ♂ pygophore with small process on basal part, and with elongate, straight lateral arms.

Description:

Length: 13.8–16 mm.

Colour: Ground colour dark yellow to pink, surface with very coarse and dense puncturation which makes the general colour a rusty red. Scutellum in median part always largely black. Head with rather distinct yellow and brown stripes. Pronotum with dense puncturation leaving a more or less distinct yellow median stripe and irregular transverse waves of yellow colour due to the deep impression of the punctures. Corium largely reddish, light stripes along sutures inconspicuous. Membrane basally black, apically grey. Antennae largely black, with exception of median surface of 1st segment; not mottled. 4th and 5th segments in some specimens basally lighter, but light colour rather fading. Legs reddish to brown, mottled. Metatibia with distinct yellow ring near base. Ventral surface of thorax densely and coarsely punctate, rather brownish. Abdomen with wide black sublateral band, nearly attaining lateral border. In some specimens only a small yellow median stripe left. Genital segment black.

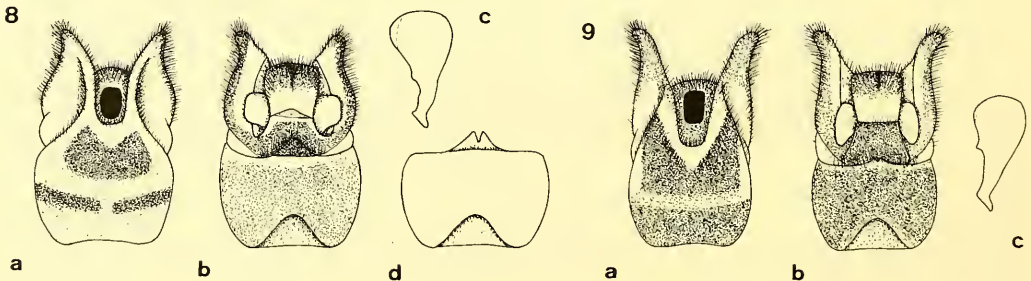


Fig. 8. ♂ pygophore. a. Dorsal view of pygophore of *T. m. grossi*, subspec. nov.; b. Ventral view of pygophore of *T. m. grossi*, subspec. nov.; c. Clasper of *T. m. grossi*, subspec. nov.; d. Ventral view of basal part of pygophore of *T. m. modestus* (Stål).

Fig. 9. ♂ pygophore of *T. m. lyricus* (Distant). a. Dorsal view; b. Ventral view; c. Clasper.

Head: Of average size. Punctuation of dark stripes dense, coarse, deeply impressed, rather irregular. Antennae elongate, 2nd segment always considerably longer than 3rd segment. Antennal ratio of three specimens: 22:31:19.5:25:20; 21:30:22:27:21; 23:31:22:28:21.

Pronotum: With lateral borders feebly concave, anteriorly slightly crenulate. Lateral channel shallow, border not much upturned. Punctures deeply impressed, impunctate areas form irregular, raised, transverse lines.

Scutellum: Also densely and deeply punctate, median part slightly raised. Punctuation of corium slightly less coarse, though dense and fairly regular. Abdomen laterally rather regularly punctate.

♂ genitalia: Large; basal part, however, rather narrow, process on posterior rim of ventral surface very small. Lateral "arms" elongate, straight, laterally just slightly sinuate. Claspers convex at apex.

♀ genital segment: Much like that of other subspecies.

Variation: Specimens from southwestern Australia and Victoria (but see "distribution") show very little variation. Two ♂ from Central Australia (Hermannsburg) are doubtfully included in this subspecies by reason of their ♂ pygophores, structure of dorsal punctuation, reddish colour, and black colour of scutellum.

Distribution (Fig. 16):

Southwestern Australia, southern Northern Territory, perhaps southern Australia east to Victoria. This last record, however, is doubtful, because the single specimen from Victoria bears only the label "Darlington", without specification of state.

Material examined (7 specimens):

Western Australia: 2♂, 1♀, Perth, lectotype! (BMNH, ZSM); 1♀, Swan River, "*Poecilometis scutellatus* Dist., det B. UVAROV" (BMNH). Northern Territory: 2♂, Hermannsburg (BMNH). Victoria?: 1♀, Darlington, paralectotype! (BMNH).

Habits:

Not stated, perhaps also under bark of Eucalypts, in Central Australia presumably on River Eucalypt.

***Theseus modestus tasmanicus* subspec. nov.**

(Figs 4, 7, 10, 16)

Holotype:

♂, Dip River Falls, 18 km S. of Stanley, NW. Tasmania, 3.XII. 1972, M. BAEHR (ZSM).

Type locality:

Dip River Falls, northwestern Tasmania.

Diagnosis:

Medium-sized subspecies with coarse, but sparse punctuation; strongly sinuate and crenulate lateral border of pronotum; very elongate 2nd antennal segment; and ♂ pygophore with large, wide basal part, small process on ventral surface of base, very elongate, straight lateral "arms", and claspers with square apex.

Description:

Length: 13 mm.

Colour: Greyish-yellowish with a light pink hue on corium. Punctures brown. Pattern very uniform. Stripes on head inconspicuous. Yellow median stripe on pronotum inconspicuous, incomplete, because dark punctuation is very sparse. Scutellum near apex black, apex contrastingly yellow. Corium with large light areas between punctures and rather conspicuous, impunctate, light stripes near sutures. Membrane greyish, basally black. Ventral surface of thorax light brown, densely punctate.

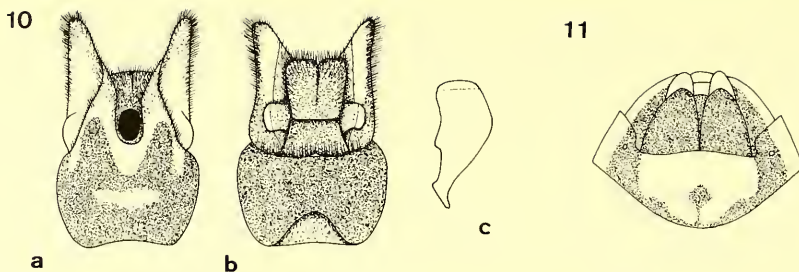


Fig. 10. ♂ pygophore of *T. m. tasmanicus*, subsp. nov. a. Dorsal view; b. Ventral view; c. Clasper.
 Fig. 11. ♀ genital segments of *T. m. modestus* (Stål).

Abdomen yellow, with wide, brown, sublateral stripe. Antennae reddish-brown, basal segment slightly mottled. 3rd segment dark brown, 4th and 5th segments reddish. Legs yellow, mottled with brown punctures. Posterior tibia with yellow ring near base, apical two thirds light brown.

Head: Of average size. Punctures on surface medium-sized, rather regular. Antennae elongate, 2nd segment about twice as long as 3rd segment, much longer than 4th. Antennal ratio: 20:33:16:27:19.

Pronotum: With lateral border distinctly bent in middle, border anteriorly slightly convex, conspicuously crenulate. Lateral channel shallow, lateral border anteriorly not, posteriorly slightly upturned. Puncturation coarse, though sparse, leaving large impunctate areas between punctures. In basal part punctures deeply impressed.

Scutellum: Sparsely punctate, median part slightly raised. Corium with coarse, though sparse puncturation, with several large impunctate spots. Impunctate stripes near sutures of corium fairly conspicuous.

♂ pygophore (Fig. 10): Basal part short and wide. Process at posterior border of ventral surface small, barely protruding. Lateral "arms" elongate, very straight, laterally not convex, barely sinuate near apex. Claspers wide, with rather square apex.

♀ genital segment: Unknown.

Variation: Unknown.

Distribution (Fig. 16):

Thus far known only from Tasmania.

Material examined (1 specimen):

Only holotype (ZSM).

Habits:

Collected under bark of Eucalypts (*Eucalyptus* cf. *simmondsii*) at the border of dense Wet Sclerophyll Forest.

Note:

This is apparently the first record of a *Theseus* from Tasmania.

***Theseus distanti* Gross, 1972**
 (Figs 12, 17)

Theseus distanti

Gross, 1972, p. 7

Theseus scutellatus

Distant, 1910, p. 375 (junior homonym)

Types:

Holotype: The unique specimen lacks the last abdominal sternite with the sexual organs, hence is cannot be sexed. It bears following labels: "Type, Townsville, Queensland, 18.9.01, Queensland, F. P. DODD 1902-319, *Theseus scutellatus*, type, Dist., Brit. Mus. Type No. Hem. 741 (BMNH)." Although DISTANT did not explicitly state, how many specimens he had at hand, he wrote in his description: "Posterior legs mutilated in type". Hence this specimen may be regarded the holotype. It lacks the apical segments of both antennae and all legs with exception of the left anterior leg.

Type locality:

Townsville, Queensland.

Note:

As DISTANT had previously described a *Poecilometis scutellatus* Distant, 1899 which was later transferred to *Theseus*, his *Theseus scutellatus* Distant, 1910 was correctly renamed by GROSS.

Diagnosis:

Easily recognized by colour, very small puncturation of surface, acute posterior angles of pronotum, and acute posterior angles of paratergites.

Description:

DISTANT (1910) gave a well-founded, exhaustive description. Hence, only some characters not mentioned by him or characters important for comparison with the other species are mentioned in the following redescription.

Length: 12 mm.

Colour: Ground colour whitish to light yellow, no distinct pattern present. Head dark yellow, with fine dark punctures, without distinct stripes. Only anteclypeus with two narrow black lines on basal part. Pronotum with fine, sparse puncturation leaving an indistinct median stripe. Punctures laterally slightly denser, therefore indistinct lateral stripes indicated. Scutellum yellow, fading to stramineous. Corium whitish, apically yellow with very fine and sparse puncturation condensing near apical border of mesocorium to an indistinct dark spot. Laterotergites yellow with a small dark spot at anterior border. Whole dorsal surface highly polished. Membrane hyaline. Lower surface of head and thorax laterally yellow with dense brown puncturation, ventrally lighter. Abdomen yellow, with a narrow, sub-lateral brown stripe. Antennae whitish, apically yellowish, all segments densely punctate. Anterior leg whitish, mottled.

Head: Juga apically square, not oblique nor acute. Surface of head finely and rather irregularly punctate. Antennae elongate, 2nd to 4th segments rather equal in length. Antennal ratio: 15:18:20:20:—.

Pronotum: Surface rather uneven. Lateral borders distinctly bent in middle, anteriorly with few crenulations, posteriorly smooth. Lateral channel extremely narrow, shallow, lateral border barely upturned. Posterior angles subacute. Surface rather densely punctate, punctures small.

Scutellum: Median part strongly raised, with a deep groove on each side. Puncturation laterally dense, medially scatered and very fine. Surface of corium rather uneven. Punctures small, irregular, leaving some larger smooth areas. In some areas, however, puncturation very dense. Laterotergites with acute posterior angles, densely punctate. Membrane hyaline, just surpassing apex of abdomen. 1st to 5th abdominal segments deeply impressed medially. Rostrum attaining base of 4th sternite.

♂ and ♀ genital segments: Unknown.

Variation: Unknown.

Distribution (Fig. 17):

Northeastern Queensland.

Material examined (1 specimen):

Only holotype (BMNH).

Habits:

Unknown.

Note:

In body shape, colour, and pattern this species is rather different from *T. modestus*. Perhaps it merits the rank of an own subgenus or even genus.

***Theseus purpurascens* spec. nov.**

(Figs 13, 14, 17)

Types:

Holotype: ♂, Behn River, E. Kimberley, HELMS (BMNH). — Paratype: ♀, same locality, same collector (BMNH).

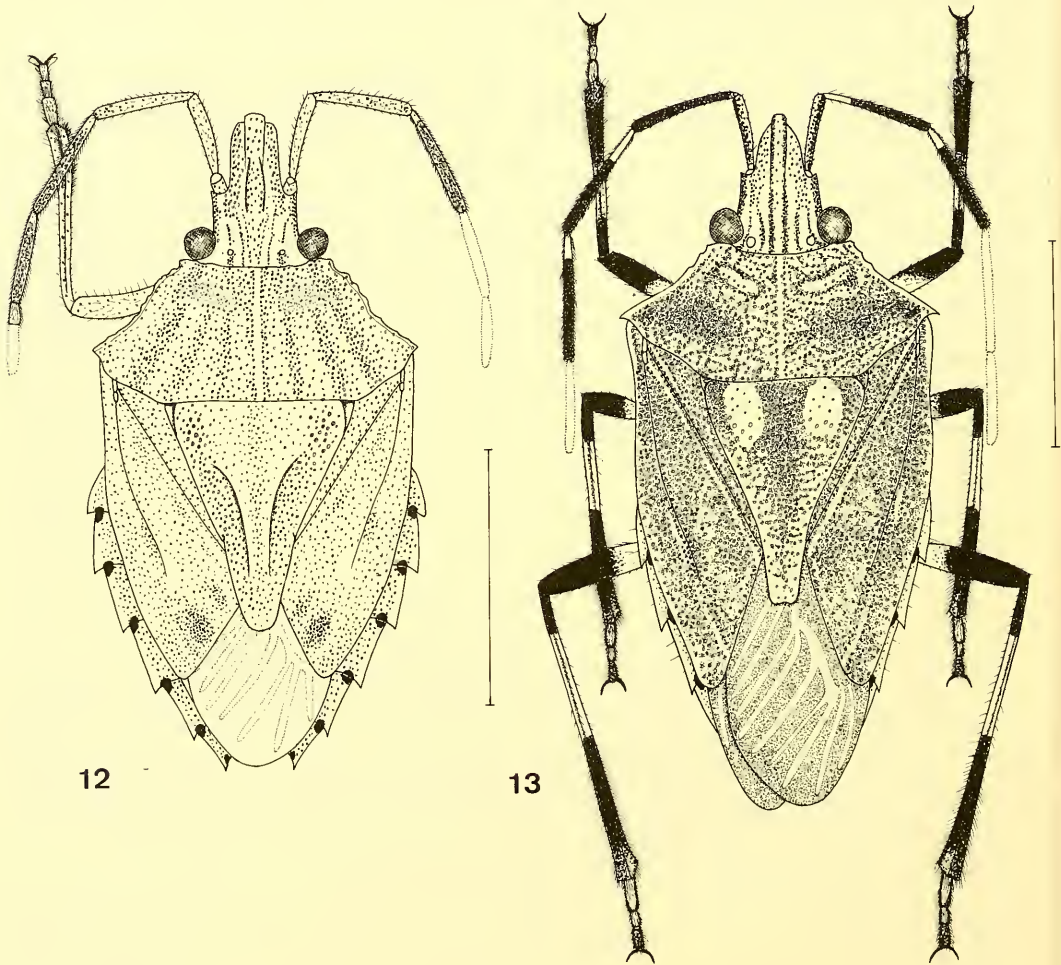


Fig. 12. *T. distanti* Gross, holotype. Scale: 5 mm.

Fig. 13. *T. purpurascens*, spec. nov., ♂ holotype. Scale: 5 mm.

Type locality:

Behn River, northernmost Western Australia.

Note:

This is the species preliminarily noted by GROSS (1976) as undescribed.

Diagnosis:

Easily distinguished by large size, elongate body shape, very contrasting pattern, acute posterior angles of pronotum, and the large yellow spots on scutellum.

Description:

Length: 17–17.6 mm.

Colour: Extremely vividly coloured. Head, pronotum, and scutellum rather glossy, mesocorium contrastingly dull. Ground colour of head, pronotum, and scutellum white, with dense blackish puncturation and large dark areas. Head basally with four narrow dark stripes, anteriorly with irregular, coarse, dark punctures. Pronotum densely and coarsely punctate, punctures near apex and base less dense and leaving some larger white, impunctate areas. In middle, however, puncturation very dense, this area nearly brown. A median stripe and the lateral borders narrowly, though conspicuously white. Apex and lateral borders of scutellum and two large, conspicuous spots near base whitish-yellowish, middle and base black, base laterally with greenish metallic lustre. Also white spots encircled with black. Hemelytra uniformly purplish, only apex and lateral border very narrowly whitish. Laterotergites white, with a dark greenish spot at apex of each laterotergite not reaching lateral border. Membrane blackish-brown. 1st antennal segment largely black, medially mottled; 2nd completely black; 3rd and 4th segments black, basally with a narrow, contrastingly white ring. Rostrum yellow, last segment black. Legs: Femora yellow with apex black, slightly mottled. Tibiae black with a conspicuous, wide, yellow, subbasal ring. 1st and 2nd tarsomeres yellow, laterally brown, 3rd tarsomere brown. Head laterally black with greenish tinge, ventrally yellow, punctate. Thorax yellow, near lateral border almost black, slightly mottled. Abdomen yellow, with a sublateral, mottled, dark stripe, and greenish-black spots encircling each spiracle. 6th abdominal sternite basally with a lancet-shaped dark spot. ♂ pygophore basally black, apically whitish. Genital segment of ♀ yellow.

Head: Of average size. Anteclypeus much surpassing juga. Juga anteriorly obliquely convex. Eyes strongly protruding. Ocelli large, much larger than in all other species of *Theseus*. Antennae elongate. 2nd to 4th segments subequal. Antennal ratio: 19:28:28:31:–. Bucculae apically spined.

Pronotum: Rather wide, at apex deeply excised. Anterior angles without any projecting tooth. Lateral borders distinctly bent about two fifth from apex, anteriorly feebly crenulate, posteriorly completely smooth. Lateral channel anteriorly deep, though narrow, posteriorly wide. Posterior angles acute, dentiform, slightly recurvate. Base rather straight. Puncturation of surface moderately coarse, very dense, especially in middle.

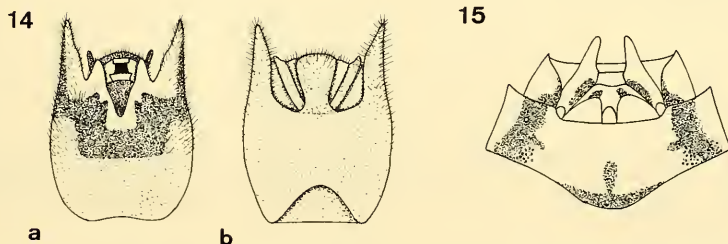


Fig. 14. ♂ pygophore of *T. purpurascens*, spec. nov. a. Dorsal view; b. Ventral view.

Fig. 15. ♀ genital segments of *T. purpurascens*, spec. nov.



Fig. 16. Distribution of *T. modestus* (Stål) and of its subspecies: *T. m. modestus* (Stål): ●; *T. m. grossi*, subsp. nov.: ■; *T. m. scutellatus* (Distant): ◆; *T. m. lyricus* (Distant): ▲; *T. m. tasmanicus*, subsp. nov.: ▼.

Fig. 17. Distribution of *T. distorti* Gross: ◆, and of *T. purpurascens*, spec. nov.: ●.

Scutellum: Elongate, with elongate, rather parallel apical part; apex slightly bisinuate. Median part slightly raised. Median ridge and base laterally with extremely dense puncturation.

Corium: Elongate, with very dense, regular, moderately coarse puncturation, leaving few stripes and small spots impunctate. Membrane elongate, much surpassing apex of abdomen, especially in ♂. Laterotergites with acute, dentiform posterior angles.

Abdomen: With just a shallow furrow, not attaining tip of 5th sternite. Furrow laterally with erect hairs. Legs of average size.

♂ genitalia (Fig. 14): Pygophore with narrow, straight lateral "arms". Aedeagus relatively small. Claspers narrow, very elongate, with acute apex.

♀ genital segment: See Fig. 15.

Variation: Little variation noted. ♀ slightly larger and wider, but pattern, colour, and structure of surface similar.

Distribution (Fig. 17):

Northernmost Western Australia.

Material examined (2 specimens):

Only types (BMNH).

Habits:

Unknown.

Note:

This species is also so different from the other species included in the genus *Theseus* that it perhaps merits the rank of an own subgenus or even genus. Such a decision, however, must await a general revision of the tribe Halyini.

Discussion

Relationships and phylogenetic status of the genus *Theseus* within the Australian Halyini shall not be discussed herein. Nevertheless, for a genus containing only three species the diversity is considerable. Perhaps all three existing species might be better placed in their own genera, a procedure, however, which should await a general phylogenetical approach to the whole tribe.

Regarding the phylogenetical status of the species, certainly the two northern species *T. distanti* and *T. purpurascens* are more advanced than the widespread *T. modestus*. This is demonstrated by such apomorphic characters as acute or even spined posterior angles of pronotum, spined laterotergites, strongly raised median part of scutellum (in *T. distanti*), and, on the other hand, vivid colour and pattern in *T. purpurascens*. As both species are known from single or few specimens only, their geographical variation is unknown. *Theseus modestus*, on the other hand, shows a large amount of intraspecific variation strongly corresponding to geographical range. All five subspecies of *T. modestus* distinguished in this review can be determined by external morphological characters of colour, pattern, size, shape of pronotum, density and distribution of puncturation and others. Apart from these differences, four types of ♂ pygophore are seen in *T. modestus*, which can be reduced to two main types with odd scattered distribution. *T. m. modestus* of eastern Australia and *T. m. grossi* of the Hamersley Range area in Western Australia possess the same wide, short pygophore, differing only in special minor characters of the large ventral process. In *T. m. lyricus* of northwestern Australia and *T. m. scutellatus* of southwestern and southern central Australia the pygophore is narrow and elongate and the ventral process tiny. Therefore, the ranges of subspecies with short and wide pygophore and those with narrow and elongate pygophore show an alternating geographical pattern. (See Fig. 16).

The nominate subspecies of eastern Australia has the largest range and occurs from northwestern Queensland to at least New South Wales. The ranges of most other subspecies are much more limited. Actually, their ranges correspond to the large faunal refugia of the northwest and west, and to Tasmania, a minor refugium, which are all limited by vast areas of dry or desert country, or, respectively, by the Bass Strait. For tree dwelling species large desert or semidesert areas are apparently effective barriers for distribution.

The odd, patchy distribution of the subspecies does not easily reveal which is the ancestral stock and in which way the other parts of Australia have been colonized. However, it is most probably that the species originated in eastern Australia, because this is by far the most favourable environment for a tree-living species. If this opinion is right, the nominate subspecies *T. m. modestus* perhaps exhibits the plesiomorphic status in structure of ♂ pygophore and perhaps also in pattern and shape. As is to be expected for a taxon occurring in a vast area, the variability in this subspecies is much greater than in all other subspecies. This is certainly due to the heterogeneity of environmental conditions, e. g. of climate, forest and woodland plant communities, and the large number of *Eucalyptus* species in that area. The western subspecies, on the other hand, are remarkably uniform, presumably resulting from their limited range and the rather homogenous environmental conditions they encounter. They live nearly exclusively on River Eucalypts under fairly arid conditions. This could also explain the uniform grey or reddish colour and the less vivid pattern of the western subspecies.

Certainly the next relative of *T. m. modestus* is *T. m. grossi* which may be a western offshoot of the nominate subspecies. From the viewpoint of non-genitalic morphological characters, *T. m. scutellatus* of the group with narrow, elongate ♂ pygophore is perhaps next related to *T. m. modestus*. *T. m. tasmanicus* and especially *T. m. lyricus* are presumably less closely related to the nominate subspecies.

Since *T. modestus* contains at least two main lineages, the western part of Australia was presumably colonized by several, independent invasions. The subspecies of the Hamersley Range (*T. m. grossi*) originated perhaps directly from the nominate eastern stock, the other lineage immigrated firstly to southern or southwestern Australia (*T. m. scutellatus*) and later to northwestern Australia (*T. m. lyricus*). Tasmania was presumably also independently colonized by an early offspring of the *scutellatus* – *lyricus* – *tasmanicus* – stock.

These assumptions regarding the zoogeographical history of *Theseus* are still rather arbitrary. They are supported, however, by the fact that the tribe Halyini in the Australian region is by far most diverse in northeastern Australia and New Guinea which is perhaps the main centre of the tribe in the Australian region.

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